Uralov, M. A., and Beresham, A. S. CARBON BRICK. *Ukrain. Nauchno-Issled. Inst. O nexporov i Kislotouporov*, No. 31, 76 pp. (1934).—Details of the production of carbon brick are given. The typical composition is 80 coke, 18.7 tar, 3.6 anthracene oil, and 1.7% bitumen. The brick are fired in special furnaces or in saggers in ordinary furnaces with overhead flame to 1100° and in some cases to 1450°. Specifications of carbon brick are given.

USMANOV, A.G.; BEREZHNOY, A.N.

Characteristics of the thermodiffusional mass transfer calculated on the base of generalized relationships. Izv.vys.ucheb.zav.; khim. i khim.tekh. 8 no.2:218-223 '65.

1. Kazanskiy khimiko-tekhnologicheskiy institut imeni Kirova, kafedra teplotekhniki.

(MIRA 18:8)

An equation for calculating...

S/076/63/037/001/017/029
B101/B186

vapors into air O_2, H_2, N_2, Ar + He, Ar, Ne, D_2, and CO_2 are tabulated. The mean deviation of the calculated values from those obtained by experiment is ±1.2% and the maximum error amounts to 4 - 5% for five points. The equation offers a means of calculating those values of D for $(S_1 - S)/R = 0.00 - 6.00$ entropy units that have hitherto not been determined experimentally. There are 1 figure and 1 table.

ASSOCIATION: Kazanskiy khimiko-tekhnologicheskiy institut im. S. M. Kirova
(Kazan' Institute of Chemical Technology imeni S. M. Kirov)

SUBMITTED: May 27, 1961

Card 2/2

44896

5.4000

AUTHORS: Usmanov, A. G., Berezhnoy, A. N.

TITLE: An equation for calculating the diffusion coefficient of vapors

PERIODICAL: Zhurnal fizicheskoy khimii, v. 37, no. 1, 1963, 179 - 181

TEXT: An improved equation is given for the diffusion coefficient:

$D = 1.012 D_{\Delta S} \left[(S_1 - S)/R \right]^{0.141}$, where D and $D_{\Delta S}$ are the diffusion coeffi-

cients in the intervals of the change in entropy $S_1 - S$ and $\Delta S = S_1' - S_1$,

respectively. S_1 is the entropy of the saturated vapor directly on the sur-

face of the liquid and is calculated from $S_1 = S_v r_v + S_g r_g - R(r_v \ln r_v$

$+ r_g \ln r_g)$, where S_v and S_g are the molar entropies of the vapor and of the

gas and r_v, r_g are the molar part of the vapor and of the gas on the surface

of the liquid. S is the entropy at the end of the open tube within which

diffusion occurs; equal to the entropy of the gas into which the vapor

diffuses. The values of $D_{\Delta S} (cm^2/sec)$ for the diffusion of various organic

Card 1/2

Investigating molecular and...   S/124/61/000/012/027/038
                                      D237/D304

are determined. The processing of the large amount of experi-
mental data obtained apparently confirms the supposition of
universality and simplicity of the above-mentioned relations.
Graphs and tables are given, based on experimental data. The
result obtained is useful insofar as it enables one to deter-
mine coefficients of diffusion and thermal diffusion parameters
for the conditions outside the experimental ones. /Abstrac-
ter's note: Complete translation./

Card 2/2

S/124/61/000/012/027/038
D237/D304

AUTHORS: Usmanov, A. G., and Berezhnoy, A. N.

TITLE: Investigating molecular and thermal diffusion
                  by the similarity method

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 12, 1961,
                  106, abstract 12B738 (V sb. Konvektisn. i
                  luchistyy teploobmen. M., AN SSSR, 1960, 188-
                  204)

TEXT: Starting from some not very clearly formulated as-
sumptions concerning the character of the dependence of the
coefficient of gaseous diffusion and thermodiffusive parameter
for various gas mixtures on thermodynamic magnitudes, the au-
thors suppose that a simple relation exists and is true for all
gases. In particular, it is stated that these magnitudes de-
pend only on two characteristic entropy values, appearing in
the design of the experiment, from which the above coefficients

Card 1/2

Application of the Similarity Method in the Investigation S/076/60/034/04/33/042
of Mass Transfer Processes   B010/B009

ration of these mixtures by thermodiffusion may be described by equation (III)
of a straight line (Table 2, data for the mixture $H_2 - D_2$). By means of an inter-
polation in the range of the given generalization further data concerning the
thermodiffusion separation of binary gas mixtures may be obtained for tempera-
tures and concentrations otherwise not covered. There are 6 figures, 2 tables,
and 22 references, 7 of which are Soviet.

ASSOCIATION: Kazanskiy khimiko-tekhnologicheskiy institut im. S. M. Kirova
              (Kazan' Institute of Chemical Engineering imeni S. M. Kirov)

SUBMITTED: March 30, 1957 (initially) and December 4, 1958 (after revision)

Card 2/2

S/076/60/034/04/33/042
B010/B009

AUTHORS: Usmanov, A. G., Berezhnoy, A. N. (Kazan')

TITLE: Application of the Similarity Method in the Investigation of Mass Transfer Processes

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol. 34, No. 4, pp. 907 - 920

TEXT: Since the effect of thermal diffusion is used in engineering for the separation of gas mixtures, the diffusion and thermodiffusion mass transfers have already been investigated many times. In the present case these problems are studied in the light of the similarity of molecular processes. Two geometrically similar subsystems containing the same number of molecules with the same degrees of freedom are discussed. Subsequently, the generalized functions and examples for their application for the determination of the mass transfer coefficients are given. Table 1, moreover, contains the diffusion coefficients of vapors of various liquids in a temperature and concentration range not covered by the experiments, but calculated from the functions derived. Experiments with binary gas mixtures of Ar, Kr, Xe, and N_2 with H_2 as well as Kr and Xe showed that the sepa-

Card 1/2

22336

Investigation of the Molecular ... S/196/61/000/005/002/004
E073/E535

described by the straight line equation

$$\frac{\Delta\lambda}{\Delta\lambda_{\Delta S}} = 1.986 \ \frac{S_1 - S_2}{R}$$

where $\Delta\lambda$ - magnitude of the thermodiffusional separation of the mixture on changing the entropy at the boundaries by $S_1 - S_2$; $\Delta\lambda_{\Delta S}$ - magnitude of the size separation of the mixture on changing the entropy ΔS counted from the constant value S_1; S_1 and S_2 - entropy values of the hot and cold parts of the mixture in the stationary state. The separation values are calculated for the mixtures helium-xenon, helium-krypton and hydrogen-deuterium within wide ranges of concentrations and temperatures. 42 references.
Abstracted by V. Lyusternik.

[Abstractor's note: Complete translation.]

Card 3/3

22336

Investigation of the Molecular ...   S/196/61/000/005/002/004
                                      E073/E535

boundaries by $S_2 - S_1$; $I_{\Delta s}$ - same for $\Delta S = S_1^1 - S_1$; R - uni-
versal gas constant.   Applied to the coefficient of isothermal
diffusion with a concentration gradient equalling unity, the above
equation can be written as follows:

$$\frac{D}{D_{\Delta s}} = \varphi \left(\frac{S_1 - S_2}{R} \right)$$

This formula was verified for the diffusion of vapours from the
surface of a number of liquids into a volume filled by other
gases. The calculated values are in agreement with experimental
data within 2%. In a table, which is included, data are given
which were obtained by calculation according to the general
relationship governing the diffusion coefficient for a number of
temperatures. A similar assumption of the generalization was
applied for the process of thermodiffusional separation of binary
gas mixtures within wide ranges of temperatures and concentrations.
The generalized relation for the process of thermal diffusion is

Card 2/3

22336

S/196/61/000/005/002/004
E073/E535

/ / 9400

AUTHORS: Usmanov, A.G. and Berezhnoy, A.N.

TITLE: Investigation of the Molecular and Thermal Diffusion
by the Similarity Method

PERIODICAL: Referativnyy zhurnal, Elektrotekhnika i energetika,
No.5, 1961, p.5, abstract 5G38. (Konvektivn. i
luchistyy teploobmen, M., AS, USSR, 1960, 188-204)

TEXT: A generalization is given of experimental data on the
diffusion coefficient in the gas phase based on the conceptions
on similarity of molecular processes. If all the calculations
are made on the basis of parameters that correspond to an
arbitrary value of the entropy S, the relations for the
densities of the diffusion flows are unequivocal functions of the
entropy

$$\frac{I}{I_{\Delta S}} = \varphi\left(\frac{S_1 - S_2}{R}\right)$$

where I - density of the diffusion flux through a unit of
thickness of the gas layer on changing the entropy at the

Card 1/3

Generalization of Experimental Data on Thermal
Diffusion of Gases

69664
3/143/60/503/01/002/048
B011/A005

_____ imeni S. M. Kirov; Chair of Heat Engineering)

SUBMITTED: October 2, 1958

Card 3/3

Generalization of Experimental Data on Thermal
Diffusion of Gases

69664
S/133/60/005/01/002/018
B011/B005

the mixture in a stationary state; R is the universal gas constant. The generali-
zation comprises more than 100 binary mixtures of 1-, 2-, and polyatomic gases in
various combinations. The results obtained are represented in the coordinate system

$\frac{\Delta \lambda}{\Delta \lambda_{\Delta 0}}$ and $\frac{c_1 - c_2}{R}$ in figures 1-4. They are satisfactorily described by equation (2).

Table 1 shows, as an example, the values of separation for the mixtures He - Kr
and He - Xe calculated by equation (2). They are in good agreement with the ex-
perimental results. Table 2 gives average values of α for mixtures with equal con-
tent of components before separation. Table 3 gives the values of $\Delta \lambda$, k_{α} and α for

the $H_2 - D_2$ mixture in a wide range of concentrations and temperatures. Similar

results can be obtained for other binary mixtures. On the basis of this paper,
data can be calculated by interpolation in a temperature- and concentration range
which is not covered by the experiment. There are 4 figures, 3 tables, and 8 ref-
erences, 4 of which are Soviet.

ASSOCIATION: Kazanskiy khimiko-tekhnologicheskiy institut im. S. M. Kirova;
               Kafedra teplotekhniki (Kazan' Institute of Chemical Technology

Card 2/3

5.4700

AUTHORS: Usmanov, A. G., Berezhnoy, A. N.

TITLE: Generalization of Experimental Data on Thermal Diffusion of Gases

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya tekhnologiya, 1960, Vol 3, Nr 1, pp 8-13 (USSR)

TEXT: The authors indicate an equation: $\dfrac{\Delta\lambda}{\Delta\lambda_{\Delta S}} = 1.986 \dfrac{S_1 - S_2}{R}$ (2) to express the

separation of binary gas mixtures in thermal diffusion. The separation by thermal diffusion, and other values of gas mixtures connected with it, can be determined by this equation in a wide range of temperatures and compositions. In their paper, the authors discuss the method of generalizing experimental data on molecular transport in gases (Ref 1), to determine the thermodiffusion constant α and the thermodiffusion relation k_T. By thermal diffusion, the system comes into a state in which

the effects of separation and mixture counterbalance each other. The final result of the two steady processes is expressed by the above equation (2) where $\Delta\lambda$ is the separation of the mixture at a change of entropy within the limits $S_1 - S_2$;

$\Delta\lambda_{\Delta S}$ is the separation of the mixture at a change of entropy ΔS calculated from a

constant beginning S_1; S_1 and S_2 are entropy values of the hot and cold portions of

Card 1/3

26871
S/081/61/000/013/003/028
B105/B201

The similarity method in the...

the gas constant. This formula comprises more than 100 binary mixtures of mono-, di-, and polyatomic gases in various combinations. The deviation of the experimental points from the straight line, which is described on the basis of the foregoing equation, is usually not higher than 3 - 4 %. The equation makes it possible to interpolate experimental data on the separation of binary mixtures by thermal diffusion to a range of temperatur and concentrations that is not covered by the experiment. [Abstracter's note: Complete translation.]

Card 2/2

26871
S/081/61/000/013/003/028
B105/B201

$2\mathcal{H}.4\overline{5}00$

AUTHORS: Usmanov A. G., Berezhnoy A. N.

TITLE: The similarity method in the thermal diffusion of gases

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 13, 1961, 45, abstract
                13B328 (Tr. Kazansk. khim.-tekhnol. in-ta, 1959, vyp. 26,
                176 - 182)

TEXT: The application of methods previously recommended (RZhKhim, 1959,
No. 6, 18379) for thermal diffusion is studied in order to determine the
separation and the values of the thermal diffusion constant α and of the
thermal diffusion ratio K_T related herewith. The relative separation of
binary gas mixtures in thermal diffusion is expressed by the equation
$\Delta\lambda/\Delta\lambda_{\Delta S}$ = 1.986 $(S_1 - S_2)/R$, where $\Delta\lambda$ is the separation of the mixture
with a change of entropy at the boundaries equal to $S_1 - S_2$; $\Delta\lambda_{\Delta S}$ is the
separation of the mixture proportional to the change of entropy ΔS, which
is counted from the constant beginning S_1; S_1 and S_2 are the values of the
entropies of the hot and cold parts of the mixture in steady state; R is
Card 1/2

SOV/58-59-5-10464

Generalization of Experimental Data on the Diffusion of Vapors

result on generalizing experimental data pertaining to viscosity and thermal conductivity in the gaseous phase. (Usmanov, A.G., Bol'shov, V.R., Tr. KKhTI, 1958, Nr 22).

L.P. Kholpanov

Card 2/2

SOV/58-59-5-10464

AUTHORS: Usmanov, A.G., Berezhnoy, A.N.

TITLE: Generalization of Experimental Data on the Diffusion of Vapors

PERIODICAL: Tr. Kazansk. khim.-tekhnol. in-ta, 1958, Nr 22, pp 115 - 122

ABSTRACT: The dependence of mean relative diffusion flows in a gaseous medium
have been obtained (A.G. Usmanov, Tr. KKhTI, 1958, Nr 22). Using the
similarity method on these data, the authors arrive at a generalized
dependence of the diffusion coefficient on the entropy of the system
at various temperatures in the case of an isothermal process. With
the aid of these generalized dependences, diffusion coefficients are
determined for a series of binary and single-component mixtures in a
wide range of temperatures. Deviations from the experimental data do
not exceed 2% for the majority of the diffusion coefficients. It is
noted that similar generalized dependences yielded a satisfactory

Card 1/2

BEREZHNOY, A. N.

Dissertation: "Use of the Isochronic-Isothermic Potential to Evaluate Diffusion in the Gaseous Phase." Cand Tech Sci, Kazan'Chemicotechnological Inst, Kazan', 1954. (Referativnyy Zhurnal--Khimiya, Moscow, No 11, Jun 54)

SO: SUM 318, 23 Dec 1954

BEREZhNOY, A. N. Cand Tech Sci — (diss) The Use of the Similitude

Method During the Investigation of Mass Transfer Processes," Moscow,

1960, 22 pp, 150 copies (Power Engineering Institute im G. M. Krzhi-

zhanovskiy, AS USSR) (KL, 49/60, 127)

BEREZHNOY, A.I.; KULAGIN, P.G.; SVIRIDOV, V.A.; LEVCHENKOV, A.T.; TITARENKO, N. Kh.

Foam damper on an organosilicone base for clay muds. Burenie no.3:16-17 '64. (MIRA 18:5)

1. Ukrainskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta prirodnogo gaza i trest "Poltavaneftegazrazvedka".
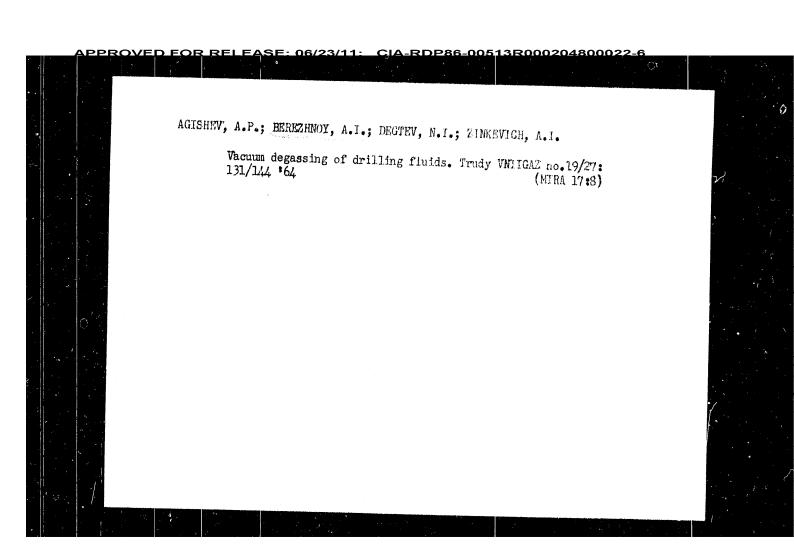
BEREZHNOY, A.I.

Formation of an airtight cement ring in the annular space of
wells. Neft. i gaz. prom. no.2:26-28 Ap-Je '65.

(MIRA 18:6)

BEREZHNOY, A.I.; SIDOROV, I.A.

Cementing high-viscosity and quick-hardening mixture obtained
by the introduction of dry free-flowing material into cement
slurry. Neft. khoz. 42 no.6:24-29 Je '64. (MIRA 17:8)

BEREZHNOY, A.I.; SVIRIDOV, V.A.; KULAGIN, P.G.

Investigating the antifoaming properties of polyorganosiloxane compounds used for drilling fluids. Izv. vys. ucheb. zav.; neft' i gaz 7 no.3:25-30 '64. (MIRA 17:6)

1. Khar'kovskiy gosudarstvennyy universitet i UkrVNIIgaz.

AGISHEV, A.P.; BEREZHNOY, A.I.; DEGTEV, N.I.; ZINKEVICH, A.I.

Vacuum degassing of drilling fluids. Trudy VNIIGAZ no.19/27:
131/144 '64
(MIRA 17:8)

BEREZHNOY, A.I.; DEGTEV, N.I.

Monitoring the content of gas in drilling fluid. Trudy VNIIGAZ
no.19/27:122-131 '64   (MIRA 17:3)

AGISHEV, A.P.; BEREZHNOY, A.I.; KULAGIN, P.G.

Drilling in producing horizons of gas fields. Trudy VNIIGAZ
no.19/27:113-122 '64   (MIRA 17:8)

DEGTEV, N.I.; BEREZHNOY, A.I.

Measuring the specific weight of gas-cut muds. Burenie no.9:23-27 '64. (MIRA 18:5)

1. Ukrainskiy filial Vsesoyuznogo nauchno-issledovatel'skogo instituta prirodnogo gaza.

BEREZHNOY, A.I.

Interrepublic seminar on degassing oil-well muds. Neft. i
gaz. prom. no.2:70 Ap-Je '64.   (MIRA 17:9)

BEREZHNOY, A.I.; KULAGIN, I.C.

Circulation fluid for drilling in producing reservoirs in gas fields. Gaz. prom. 8 no.12:4-8 '63.   (MIRA 17:7)

BEREZHNOY, A.I.; KULAGIN, P.G.; POTYUKAYEV, M.A.; SIMONOV, V.V.

Possibilities of making clayless drilling fluids from polymeric
coagulants and brines. Izv. vysh. ucheb. zav.; neft' i gaz 6
no.3:29-34 '63.   (MIRA 16:7)

1. Khar'kovskiy gosudarstvennyy universitet imeni A.M. Gor'kogo,
Ukrainskiy filial Vsesoyuznogo nauchno-issledovatel'skogo
instituta gaza i iskusstvennogo zhidkogo topliva, i Khar'kovskiy
sovet narodnogo khozyaystva.
                    (Oil well drilling fluids)

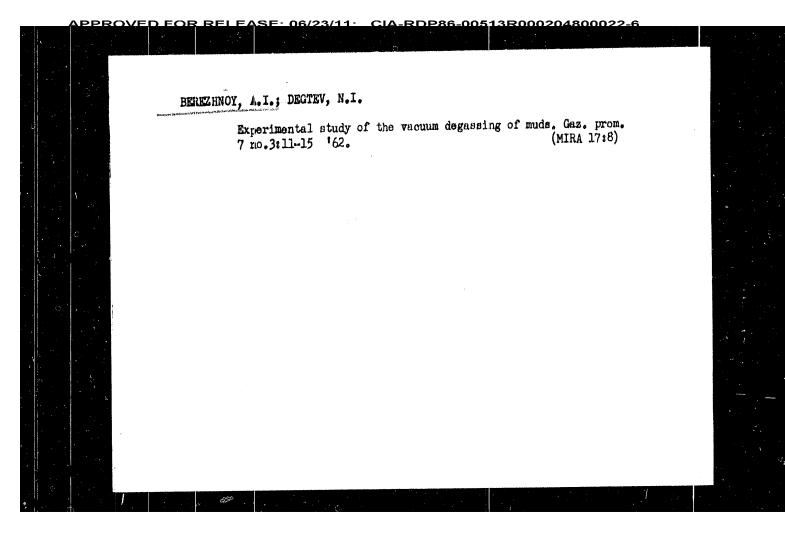BEREZHNOY, A.I., kand. tekhn. nauk; SVIRIDOV, V.A.; KULAGIN, P.G.

Using silicone to decrease the formation of foam in drilling
fluids. Neft. i gaz. prom. no.2:36-38 Ap-Je '63.

(MIRA 17:11)

1. Ukrainskiy filial Vsesoyuznogo nauchno-issledovatel'skogo
instituta prirodnogo gaza.

BEREZHNOY, Aleksandr Ivanovich; DEGTEV, Nikolay Ivanovich;
PETROVA, Ye.A., ved. red.; YAKOVLEVA, Z.I., tekhn. red.

[Degasification of drilling fluids in drilling] Degazatsiia
promyvochnykh rastvorov v burenii. Moskva, Gostoptekhizdat,
1963. 163 p.   (MIRA 16:5)
          (Oil well drilling fluids)

BEREZHNOY, A.I.; DEGTEV, N.I.

Experimental study of the vacuum degassing of muds. Gaz. prom.
7 no.3:11-15 '62.   (MIRA 17:8)

BEREZHNOY, A.I.; KULAGIN, P.G.

Changing the casing of the exploitation bottom of gas wells
in the successive periods of their exploitation. Izv. vys.
uch. zav.; neft' i gaz 5 no.9:51-56 '62.   (MIRA 17:5)

1. Khar'kovskiy gosudarstvennyy universitet i UkrVNIIgaz.

BEREZHNOY, A.I.; KULAGIN, P.G.

Selecting the designs of wells in order to improve the sinking
of producing formations in fields having high gas pools. Izv.vys.
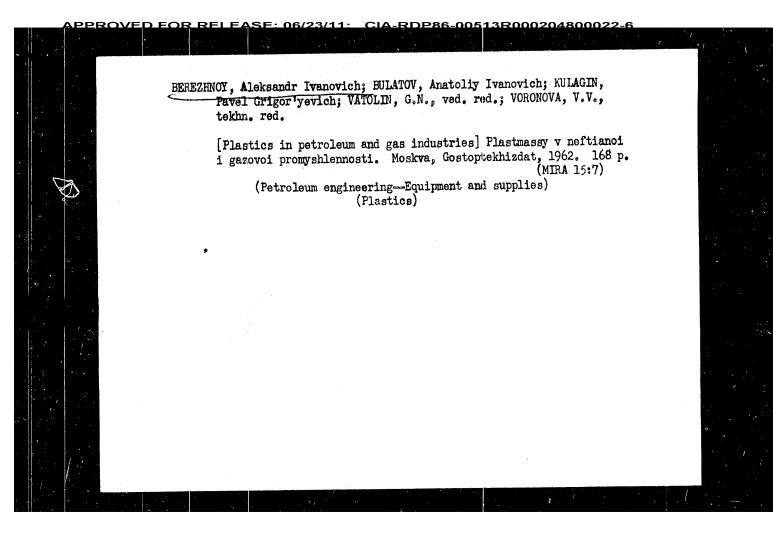ucheb.zav.; neft' i gaz 5 no.2:19-22 '62.   (MIRA 15:7)

1. Ukrainskiy zaochnyy politekhnicheskiy institut.
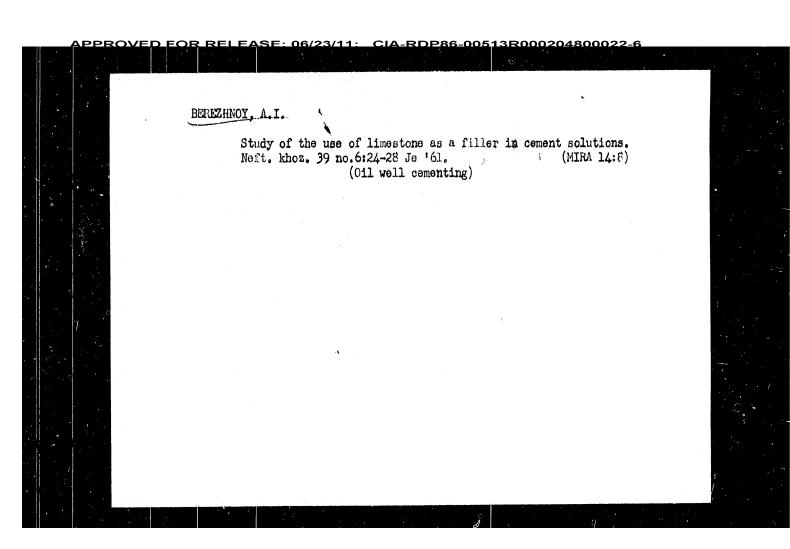   (Shebelinka region--Gas wells)

BEREZHNOY, A.I., kand.tekhn.nauk; SHEVALDIN, I.Ye., inzh.; KULAGIN, P.G., inzh.

Some problems relative to the tapping of producing layers in oil
fields. Nauch. zap. Ukrniiproekta no.9:70-82 '62. (MIRA 16:7)
(Tatar A.S.S.R.—Oil well drilling)

BEREZHNOY, A.I., kand.tekhn.nauk; SIDOROV, I.A., inzh.

Method for cementing lost-circulation zones. Nauch. zap.
Ukrniiproekta no.9:66-69 '62.   (MIRA 16:7)
                        (Oil well cementing)

BEREZHNOY, Aleksandr Ivanovich; BULATOV, Anatoliy Ivanovich; KULAGIN,
Pavel Grigor'yevich; VATOLIN, G.N., ved. red.; VORONOVA, V.V.,
tekhn. red.

[Plastics in petroleum and gas industries] Plastmassy v neftianoi
i gazovoi promyshlennosti. Moskva, Gostoptekhizdat, 1962. 168 p.
(MIRA 15:7)

(Petroleum engineering—Equipment and supplies)
(Plastics)

BEREZHNOY, A.I.

Study of the use of limestone as a filler in cement solutions.
Neft. khoz. 39 no.6:24-28 Je '61.   (MIRA 14:8)
                    (Oil well cementing)

AGISHEV, A.P.; BEREZHNOY, A.I.; DEGTEV, N.I.

Setting cement plugs into production columns. Gaz. prom. 6 no.3:4-8
'61.   (MIRA 14:3)
                         (Gas wells)

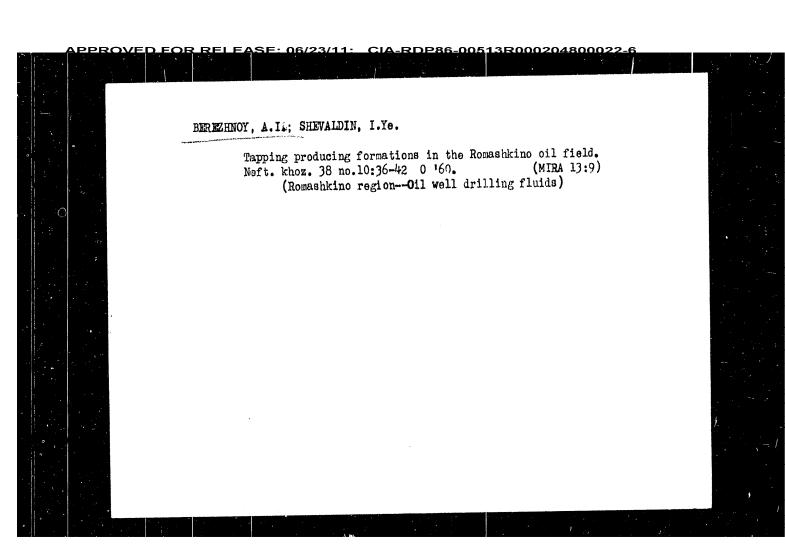BEREZHNOY, Aleksandr Ivanovich; DUBROVINA, N.D., vedushchiy red.; FEDOTOVA,
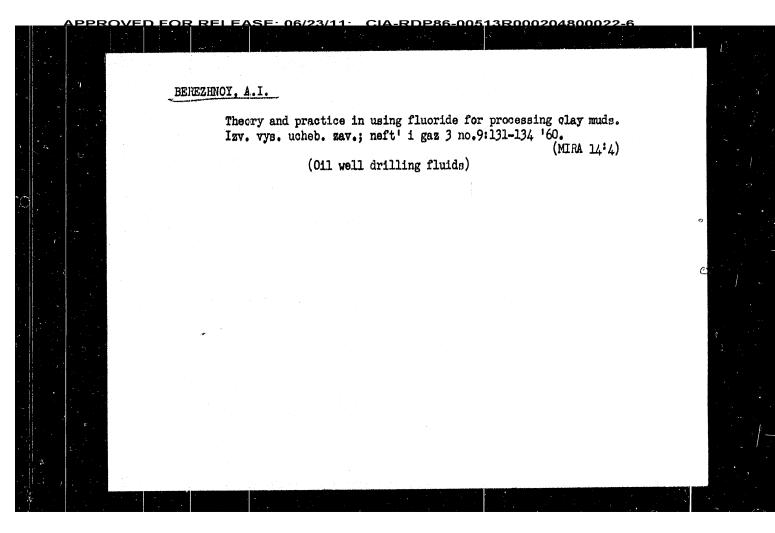I.G., tekhn. red.

Drilling fluids and cement slurries in oil well drilling; from dril-
ling practice in the Tatar Economic Region] Promyvochnye zhidkosti i
tsementnye rastvory v burenii skvazhin; iz opyta bureniia v Tatarskom
ekonomicheskom raione. Moskva, Gos. nauchno-tekhn. izd-vo neft. i
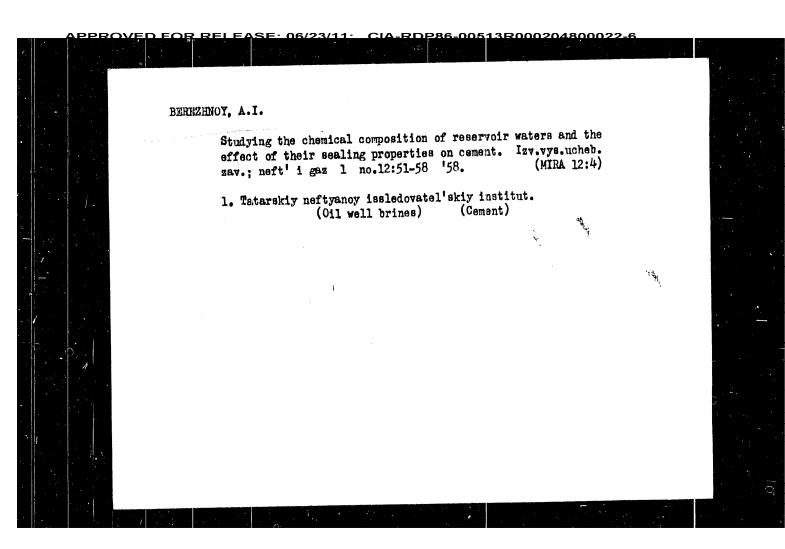gorno-toplivnoi lit-ry, 1961. 105 p. (MIRA 14:7)
        (Tatar A.S.S.R.—Oil well drilling fluids)

BEREZHNOY, A.I.; SHEVALDIN, I.Ye.

Tapping producing formations in the Romashkino oil field.
Neft. khoz. 38 no.10:36-42 O '60.   (MIRA 13:9)
        (Romashkino region--Oil well drilling fluids)

BEREZHNOY, A.I.

Theory and practice in using fluoride for processing clay muds.
Izv. vys. ucheb. zav.; neft' i gaz 3 no.9:131-134 '60.
(MIRA 14:4)

(Oil well drilling fluids)

BEREZHNOY, A.I.

Studying the chemical composition of reservoir waters and the effect of their sealing properties on cement. Izv.vys.ucheb. zav.; neft' i gaz 1 no.12:51-58 '58. (MIRA 12:4)

1. Tatarskiy neftyanoy issledovatel'skiy institut.
(Oil well brines)   (Cement)

TITKOV, N.I.; BEREZHNOY A.I.

Increasing plugging properties of cement slurry. Trudy Inst.nefti
11:121-143 '58.   (MIRA 11:12)

(Oil well cementing)

BEREZHNOY, A. I.

with N. I. Titkov "How to Increase Plugging Properties of the Cement Slurry"

Transactions of the Petroleum Institute, Acad. Sci. USSR, v. 11, Oil Field Industry, Moscow, Izd-vo AN SSSR, 1958. 446pp.

Cement Mixtures of Good Cementing Quality   93-57-7-4/22

1) calcium chloride and sulfoligninic acid have a combined
effect on the hardening rapidity of cement mixtures, 2)
it is mainly tricalcium aluminate ($3CaO \cdot Al_2O_3$) of a clinker
which endows cement mixtures with new properties, 3) escape
of drilling fluid during drilling can be prevented by
preparing the mixtures of cement from the Sterlitamak plant
in the following proportions: w/c = 0.4, $CaCl_2$ = 10 percent,
SSB = 1-2 percent, and of cement from the "Komsomolets"
plant in the following proportions: w/c = 0.4, $CaCl_2$ = 8.5
percent, SSB = 4 - 5.5 percent. The optimum amount of $CaCl_2$
and SSB for cement mixtures has been verified by field data.
It was also established that a cement mixture containing addi-
tives hardens within two hours instead of the 14 hours required
by normal cement. This will shorten the delay of cement hardening
from 14-16 to 2-3 hours. There are 6 figures, 1 table, and 8
Soviet references.

AVAILABLE: Library of Congress

Card 3/3   1. Adhesives-Development

cementing quality. They used seventeen types of cements from
the Sterlitamak plant, five from the Vol'sk plant
(Vol'skiy zavod), and one from the Pashiya plant (Pashiyskiy
zavod). Liquid $CaCl_2$ and brand KBZh sulfite waste liquor (SSB)
served as additives. Fig. 1 shows the setting time of the
cement mixtures and the percentage of $CaCl_2$ additive.
Fig. 3 shows the relationship between heat generation, setting
time, and the percentage of $CaCl_2$ additive. Fig. 4 shows the
compressive strength of cement containing more than 10 and
less than 10 percent $CaCl_2$ after storing for several days in a
moist area. Fig. 5 shows that an addition of 1-2 percent SSB
to a cement mixture with a 10 percent $CaCl_2$ content will reduce
the pumping time for the mixture 30 to 40 minutes. Fig. 6
compares the strength of normal cement and cement with a
$CaCl_2$ and SSB content. The authors have established that

Card 2/3

BEREZHNOY, A. I.

93-57-7-4/22

AUTHOR: Titkov, N.I., and Berezhnoy, A.I.

TITLE: Cement Mixtures of Good Cementing Quality (Tsementnyye rastvory s vysokimi tamponiruyushchimi svoystvami)

Vol. 35

ABSTRACT: The cement and water proportion in pastes made of cements from the Sterlitamak (Sterlitamakskiy zavod) and the "Komsomolets" plants is 0.45 and a change in this proportion does not substantially affect the properties of the cement mixtures (Table). However, normal cements possess poor rheological qualities and are ineffective (Fig. 1). Therefore, scientists of the oil well drilling laboratory at the Petroleum Institute of the AN USSR (Institut nefti AN SSSR) and G.A. Shaykh-Ali and A.G. Shevchenko of the TsNIL oil field laboratory under the Association of the Tartar Petroleum Industry (Tatneft') performed about 550 experiments in order to produce cement mixtures of good

Card 1/3

Name: BEREZHNOY, A. I.

Dissertation: Using cement mortars to eliminate absorption of drilling
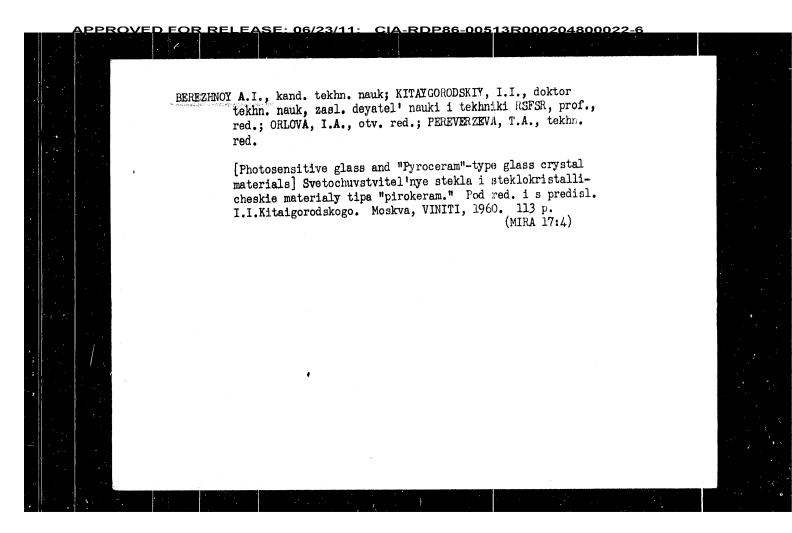muds; Romashkin oil deposit

Degree: Cand Tech Sci

Defended at

Affiliation: Acad Sci USSR, Inst of Petroleum

Publication

Defense Date, Place: 1956, Moscow

Source: Knizhnaya Letopis', No 51, 1956

BEREZHNOY, A.I

Akademiya nauk SSSR. Energeticheskiy institut

Konvektivnyy i luchistyy teploobmen (Convection and Radiation Heat Exchange)
Moscow, Izd-vo AN SSSR, 1960. 254 p. Errata slip inserted. 3,200 copies printed.

Ed.: M.A. Mikheyev, Academician; Ed. of Publishing House: G.B. Gorbunov; Tech. Ed.: V.V. Bragul'.

PURPOSE: The book is intended for scientists and engineers working in various branches of science and industry concerned with thermodynamics and heat transfer problems.

COVERAGE: The book consists of 19 original articles on various problems in thermodynamics. The following subjects are discussed: mechanism of heat transfer processes, intensification of heat exchange, determination of thermophysical properties of operating media, heat transfer in supersonic flow of gas, and conduction chambers and nuclear reactors. Theory and experimental techniques are described. Each article describes the condition of the experiment and tables of the experimental data obtained are given. The data may be used for calculations of heat transfer and heat exchangers, always taking account of ...

Mikheyev, M.A., S.S. Filimonov, and B.A. Khrustalev. Investigation of Heat Exchange and Hydraulic Resistance of Water Moving in Pipes   33

Petukhin, I.M. Heat Transfer in Vertical Pipes in Natural Convection   56

Aladyev, I.T., and L.D. Dodonov. Critical Thermal Currents in Boiling Underheated Water in Channels of Complex Form (100 ata pressure)   65

Aladyev, I.T., L.D. Dodonov, and V.S. Udalov. Experimental Data on Heat Transfer in Bubbling Boiling of Underheated Water in Pipes   79

Vasilyev, A.F. Generalization of Experimental Data on Viscosity and Heat Conductivity of Liquid Metals   97

Abramov, V.I., and S.N. Shorin. Investigation of the Process of Combined Heat Exchange in a Combustion Chamber   107

Polyak, G.L. Radiation Heat Exchange of Bodies With Arbitrary Indicatrices of Surface Reflection   118

Filimonov, S.S., B.A. Khrustalev, and V.N. Adrianov. Measurement of the Components of Combined Convection and Radiation Heat Exchange by the Method of Two Radiometers   133

Adrianov, V.N. Radiometric Instrument for Measuring the Flow of Radiation   145

Dul'nev, G.N. Theory of the Heat Regime of Some Constructions of Radio-electronic Installations   150

Dul'nev, G.N., G.P. Pokhyrskaya, and A.I. Galiyev. Engineering Method for Calculating the Heat Regime of Radioelectronic Equipment   161

Baum, V.A. Thermal Modeling of the Heat-Producing Elements of an Atomic Reactor   176

Tumanov, A.G., and A.I. Parshutenko. Investigation of Molecular and Thermic Diffusion by the Similarity Method   188

Minashin, V.Ye., V.I. Subbotin, P.A. Ushakov, and A.A. Sholokhov. Measuring the Sharp Connected With the Distortion of Isotherms in the Region of the Lo-cation of Thermocouples   205

Filimonov, S.S., and B.A. Khrustalev. Calculation of Heat Exchange and Hy-draulic Resistance in Laminar Motion of Fluids in Pipes   221

Aladyev, I.T. Heat Transfer in Bubbling Boiling   233

AVAILABLE: Library of Congress

BEREZHNOY A.I., kand. tekhn. nauk; KITAYGORODSKIY, I.I., doktor
tekhn. nauk, zasl. deyatel' nauki i tekhniki RSFSR, prof.,
red.; ORLOVA, I.A., otv. red.; PEREVERZEVA, T.A., tekhn.
red.

[Photosensitive glass and "Pyroceram"-type glass crystal
materials] Svetochuvstvitel'nye stekla i steklokristalli-
cheskie materialy tipa "pirokeram." Pod red. i s predisl.
I.I.Kitaigorodskogo. Moskva, VINITI, 1960. 113 p.
(MIRA 17:4)

SOV/153-2-1-16/25

Investigation of the Strength During   Static and Impact Bending, of
the Microhardness and Microstrength of Thermally Treated Glasses

lengths and their scattering decrease with increasing duration
of the annealing process up to 7.5 h. Table 4 shows the same
results as table 3 for the above-mentioned rolled glass,
which agree with those listed in table 3. When the annealing
process is prolonged over 7.5 h the microstrength decreases
and attains the initial value. Since maximum microstrength
occurred in samples annealed for 7.5 h the author assumes
that there is a connection between the variation in the
tensile microstrength and that in the bending strength. Both
values showed simultaneously a maximum. There are 4 tables,
and 8 references, 6 of which are Soviet.

ASSOCIATION: Ivanovskiy khimiko-tekhnologicheskiy institut; Kafedra
tekhnologii silikatov
(Ivanovo Institute of Chemical Technology, Chair of Silicate
Technology)

Card 3/4

SOV/153-2-1-16/25

Investigation of the Strength During   static and Impact Bending, of
the Microhardness and Microstrength of Thermally Treated Glasses

comprised thorough and long annealing (heating up to $550\pm5°$
with an average temperature increase of $5°$/min, duration of
3 to 60 h and, slow cooling for $1.0 - 1.5°$/min). The majority
of the annealed samples had practically no double refraction
at the polarimeter. Part of the pane glass was annealed up to
a degree of hardening of 1350 - 1450 mμ, i.e. less than
3 N/cm. Table 1 shows the breaking strength of thermally treat-
ed glasses in the afore-mentioned bending. It results there-
from that by long annealing the strength of the glasses during
impact bending increased by 2 - 2.5 times on the average and
by 3-5 times as a maximum. This increase was accompanied by
the increase in the variation coefficient from 18-28% (initial
samples) to 30-32% (samples strengthened by annealing). Table 2
shows that the microstrength during the pressing decreases
with the increasing duration of annealing. This is nothing
extraordinary (Refs 7, 8). Table 3 shows the scattering of
the lengths of diagonal cracks in pane glass caused by pressing
in a diamond pyramid after various thermal treatments. The

Card 2/4

5(1)

AUTHOR: Berezhnoy, A. I.

TITLE: Investigation of the Strength During Static and Impact
Bending, of the Microhardness and microstrength of Thermally
Treated Glasses (Issledovaniye prochnosti pri staticheskom
i udarnom izgibe, mikrotverdosti i mikroprochnosti termicheski
obrabotannykh stekol)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Khimiya i khimicheskaya
tekhnologiya, 1959, Vol 2, Nr 1, pp 82-88 (USSR)

ABSTRACT: The physico-mechanical properties of glass are characteristic
of the quality of glass products. The increase in the mechani-
cal strength of glass is a current problem. The author investi-
gated the strength of window-pane glass under static and
impact bending, which consisted of: (wt%) SiO_2 - 72.2;

R_2O_3 - 1.5; CaO - 7.7; MgO - 3.2; Na_2O - 15.0; SO_3 - 0.4;
further, he studied the strength of continuously rolled glass
with the composition SiO_2 - 71.90; R_2O_3 - 1.12; CaO - 10.57;

MgO - 2.07; Na_2O - 13.70; SO_3 - 0.61. The thermal treatment

Card 1/4

KESHISHYAN, T.N.; BEREZHNOY, A.I.

Investigating the character of glass break under the impact bending
by the rapid filming method. Trudy MKHTI no.27:137-149 '59.

(MIRA 15:6)

(Glass research)

BEREZHNOY, A.I

Category : USSR/Atomic and Molecular Physics - Liquids

D-8

Abs Jour : Ref Zhur - Fizika, No 2, 1957 No 3600

Author : Kitaygarodskiy, I.I., Keshinyan, T.N., Berezhnoy, A.I.
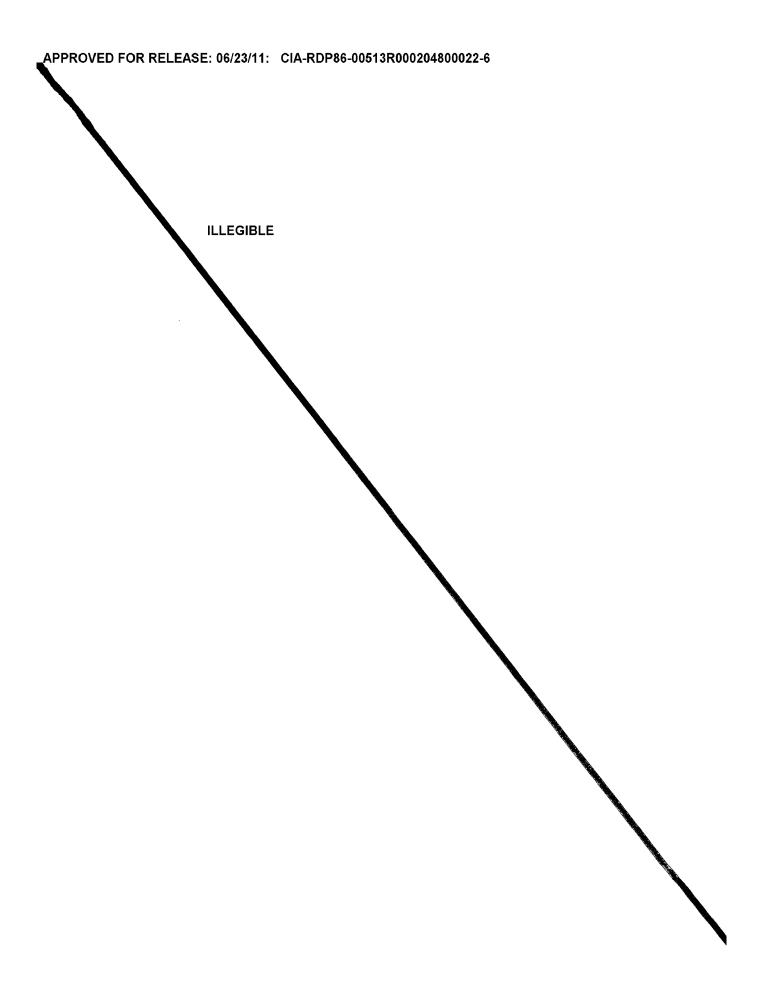Title : Method for Determining the Maximum Breakdown Strain and Young's
Modulus of Glass Specimens.

Orig Pub : Tr. Mosk. khim.-tekhnol. in-ta, 1956, vyp. 21, 39-44

Abstract : Description of a method for determining the maximum strain and the
Young's modulus (E) of glass specimens at the instant directly pro-
ceeding the breakdown, using motion picture photography of the scale
of the indicator that measures the deflection of the specimen. The
specimen was loaded at a rate of 2.7 kg/sec. A linear relationship was
established between the magnitude of the strain and the load. The
bending strength was found to be 800 kg/mm^2, the maximum strain was
0.4115 mm (specimen measuring 120 x 45 x 225, distance between knife
edges 100 mm), $E = 6895$ kg/mm^2, $\delta/0.1$ E=0.011.

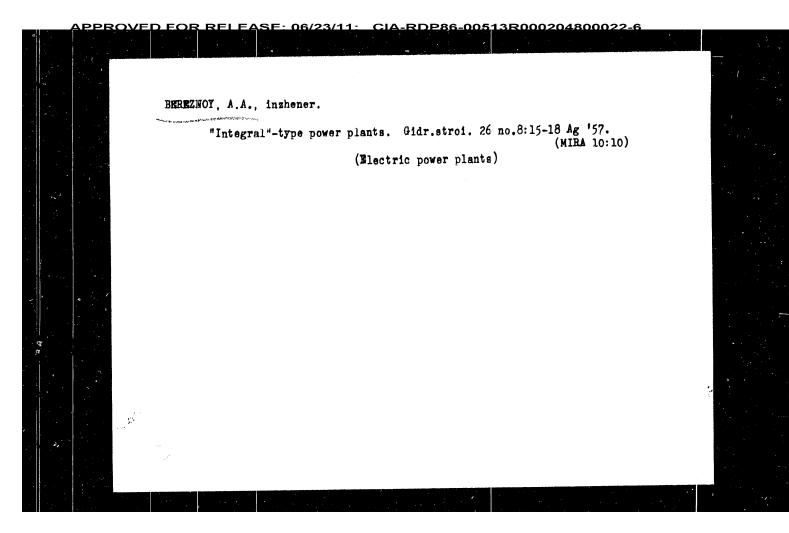Trudy Moskov. Khim.-Tkehnol. Inst. A. I. Mendeleyev.

Card : 1/1

ILLEGIBLE

BEREZHNOY, A. I.

BEREZHNOY, A. I. - "Investigation of certain physicomechanical properties of thermally
processed glass." Moscow, 1955. Min Higher Education USSR. Moscow Order of
Lenin Chemicotechnological Inst imeni D. I. Mendeleyev. (Dissertations for degree
of Candidate of Technical Sciences.)

SO: Knizhnaya letopis', No 48. 26 November 1955. Moscow.

BEREZHNOY, Aleksey Aleksandrovich, kand. tekhn. nauk; MOZHEVITNOV,
A.L., red.

[Machine buildings of hydroelectric power stations and
their equipment] Silovye zdaniia gidroelektricheskikh
stantsii i ikh oborudovanie. Izd.3., zanovo perer. i dop.
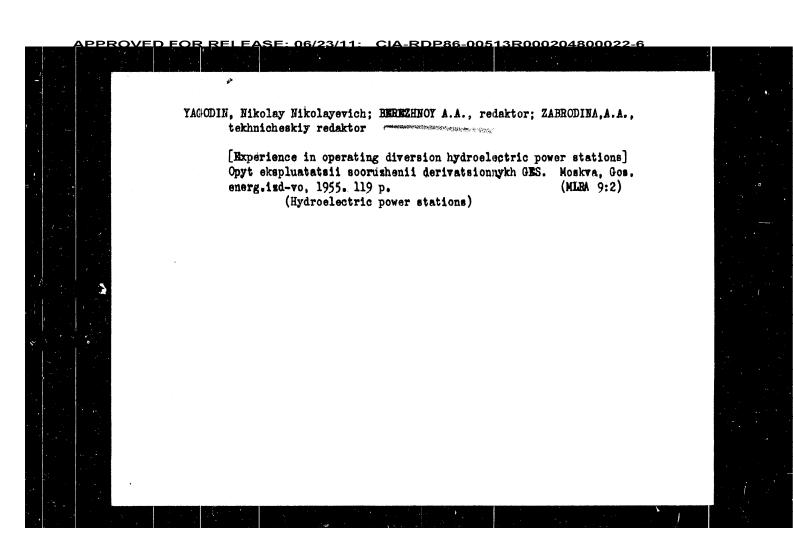Moskva, Energiia, 1964. 309 p. (MIRA 17:10)

BEREZNOY, A.A., inzhener.

"Integral"-type power plants. Gidr.stroi. 26 no.8:15-18 Ag '57.
(MIRA 10:10)

(Electric power plants)

BEREZHNOY, Aleksey Aleksandrovich; MOZHEVITINOV, A.L., redaktor; ZABRODINA,
A.A., tekhnicheskiy redaktor

[Power houses of hydroelectric plants and their equipment] Silovye
zdaniia gidroelektricheskikh stantsii i ikh oborudovanie. Izd.2-oe,
perer. i dop. Moskva, Gos.energ.izd-vo, 1957. 272 p. (MLRA 10:7)
    (Hydroelectric power stations)

YAGODIN, Nikolay Nikolayevich; BEREZHNOY A.A., redaktor; ZABRODINA,A.A.,
    tekhnicheskiy redaktor

    [Experience in operating diversion hydroelectric power stations]
    Opyt ekspluatatsii soorushenii derivatsionnykh GES. Moskva, Gos.
    energ.izd-vo, 1955. 119 p.   (MLRA 9:2)
            (Hydroelectric power stations)

BEREZHNOI, A.A.

Zdaniia gidroelektricheskikh stantsii (Buildings of hydroelectric power plants). Moskva, Gosenergoizdat, 1953. 72 p.

SO: Monthly List of Russian Accessions, Vol 7, No 9, Dec 1954

BEREZHNOY, A. A.

USSR/Engineering - Hydraulic   Jan 51
                            Engineering, Dams

"Causes for Deformations of the Membrane of a
Rock-Fill Dam," A. A. Berezhnoy, Engr

"Gidrotekh Stroi" No 1, pp 19-21

Describes rock-fill dam erected in difficultly
accessible area where delivery cost of cement
for concrete would be prohibitive. Deformations
of timber-type membrane were caused by curvi-
linear shape of dam, since there are no elements
suitable to function as an arch.

                                                199T35

BEREZHNOY, A. A.

USSR/Engineering - Construction   Oct 50

"Application of Reinforcing Girders in the Struc-
tural Frame of Hydroelectric Power Stations," A. A.
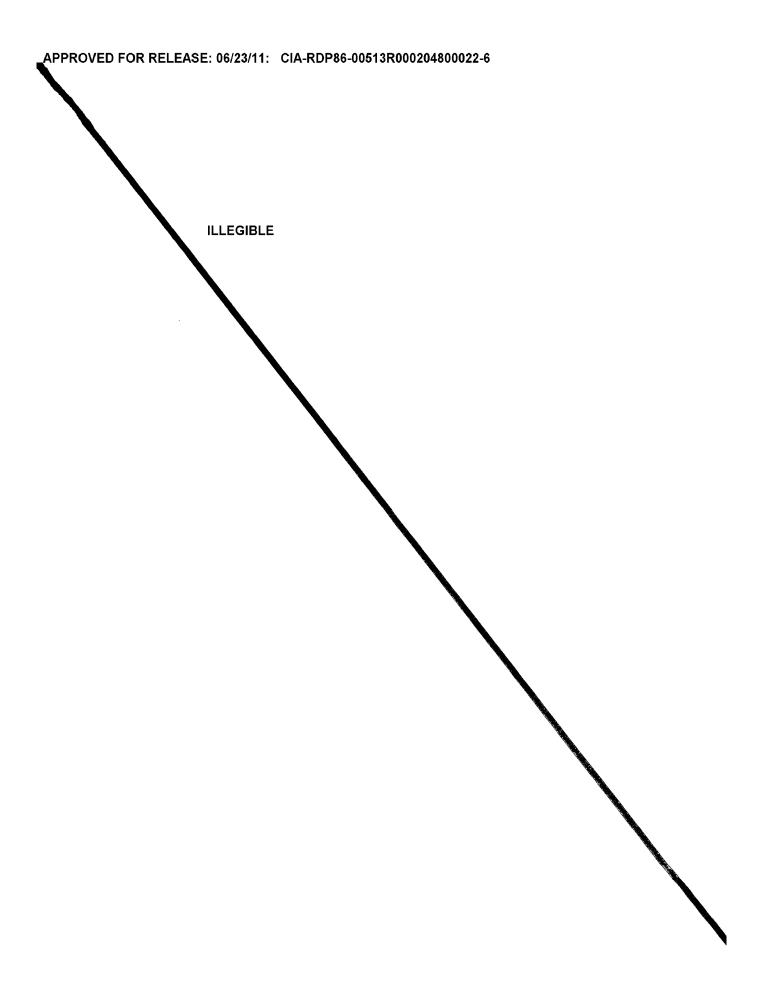Berezhnoy, Engr

"Gidrotekh Stroi" No 10, pp 16-20

Use of girders instead of sep pieces of reinforc-
ing metal, despite increase in consumption of steel
by 15-25%, decreases constr costs in many cases.
In cases when girders carry addnl loads during con-
creting, and metal consumption is increased by 35-
80%, method is feasible only under certain condi-
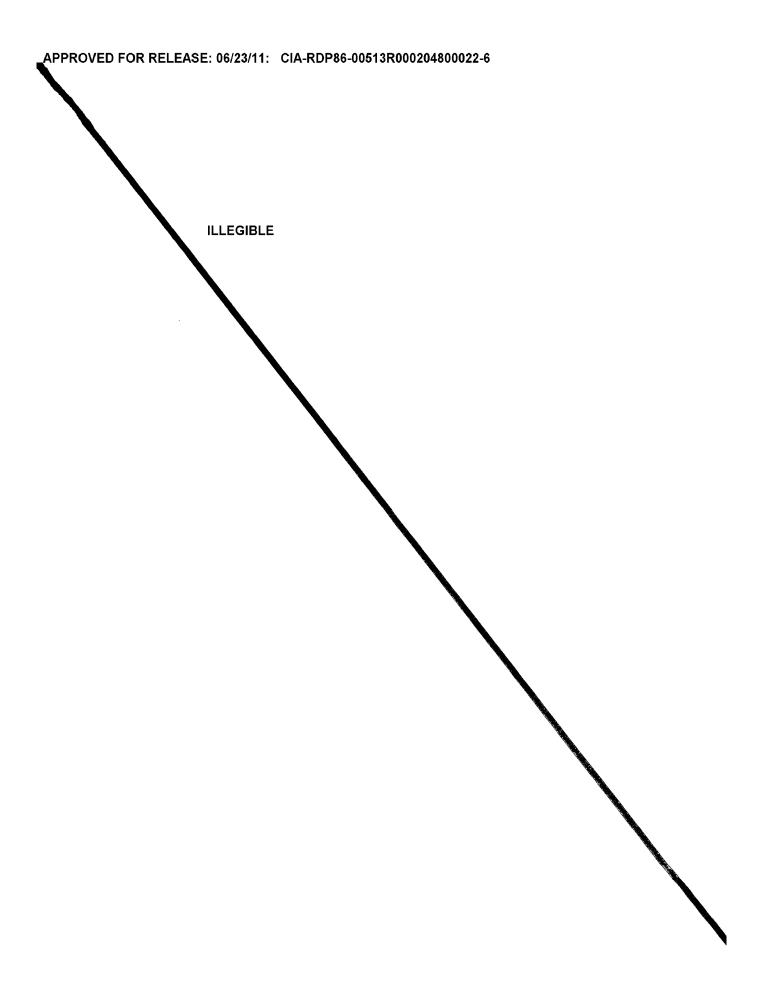tions. Details use of method.

182T57

BEREZHNOY, A. A.
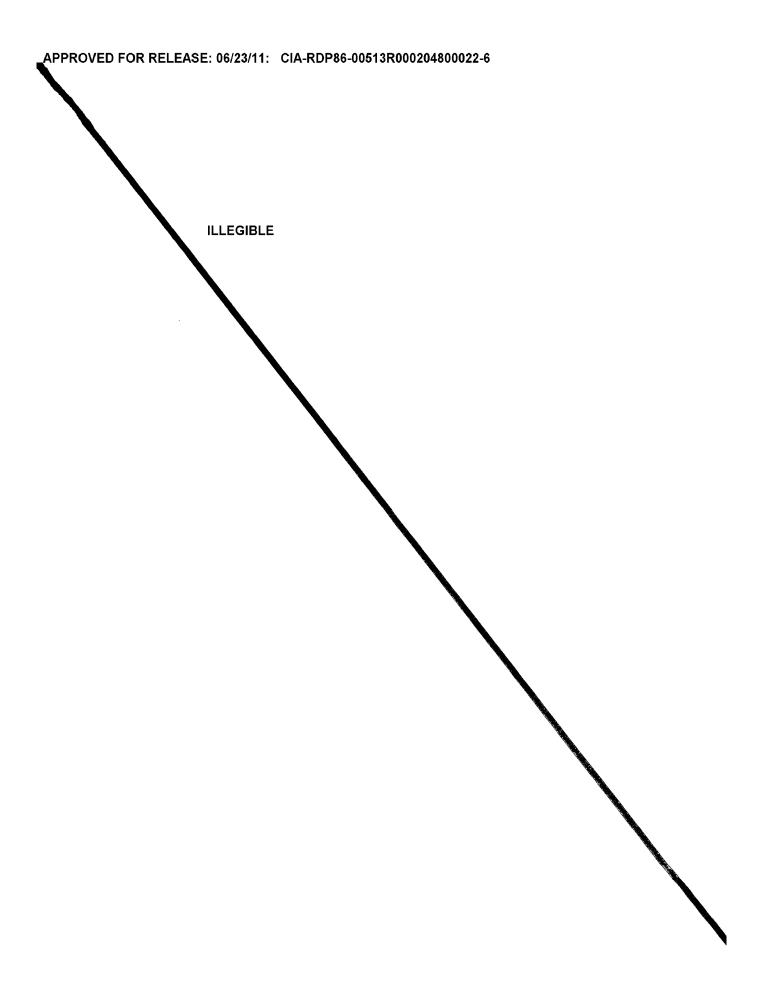
Power houses of hydroelectric plants and their equipment
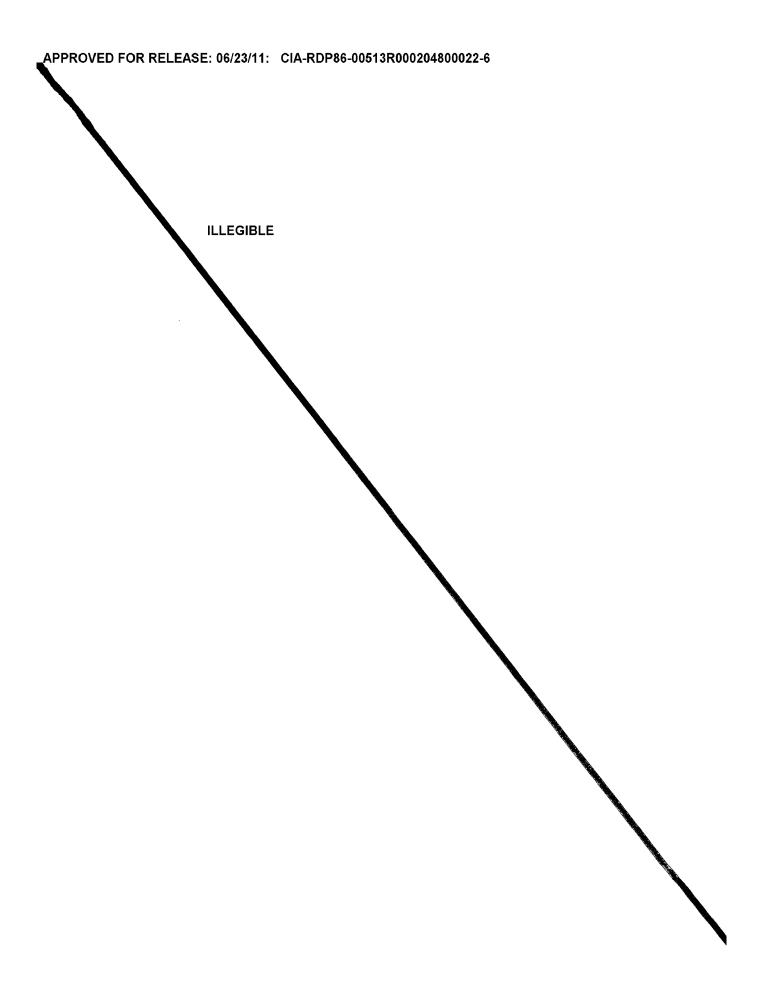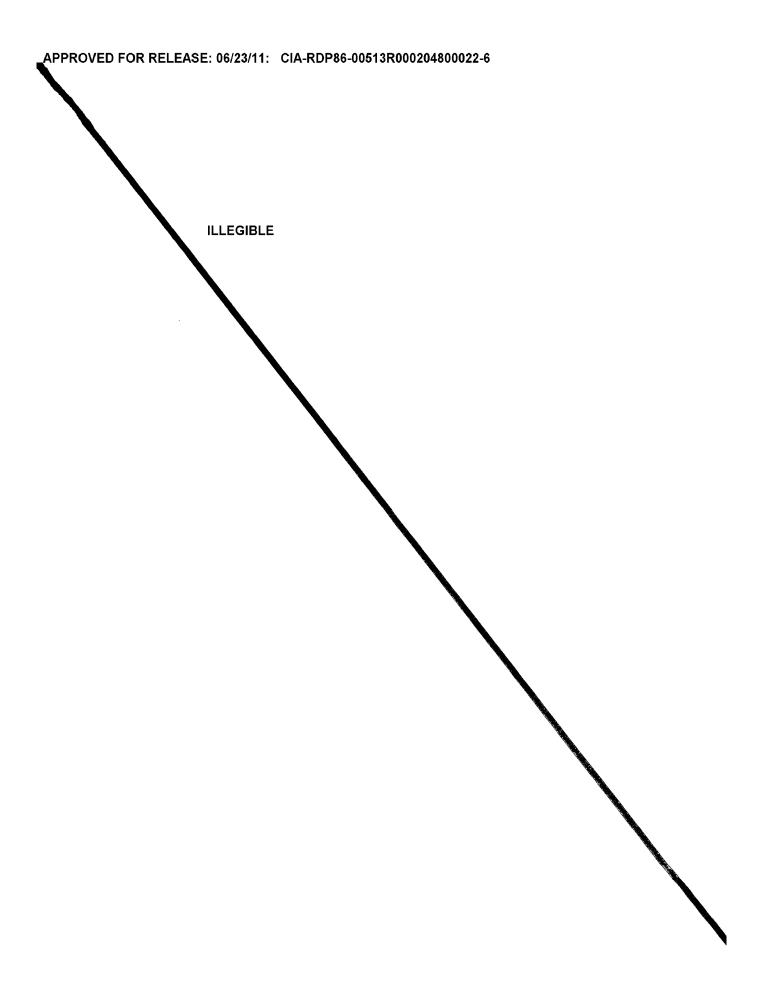Leningrad, Gos. energ. izd-vo, 1948. 211 p.
(50-35518)

TK1081.B48

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BEREZHNOY, A.

Speed up the building of flour mills in Molotov Province.
Muk.-elev.prom. 20 no.2:27 F '54. (MLRA 7:7)

1. Molotovskiy trest Glavmuki.
    (Molotov Province--Flour mills) (Flour mills--Molotov
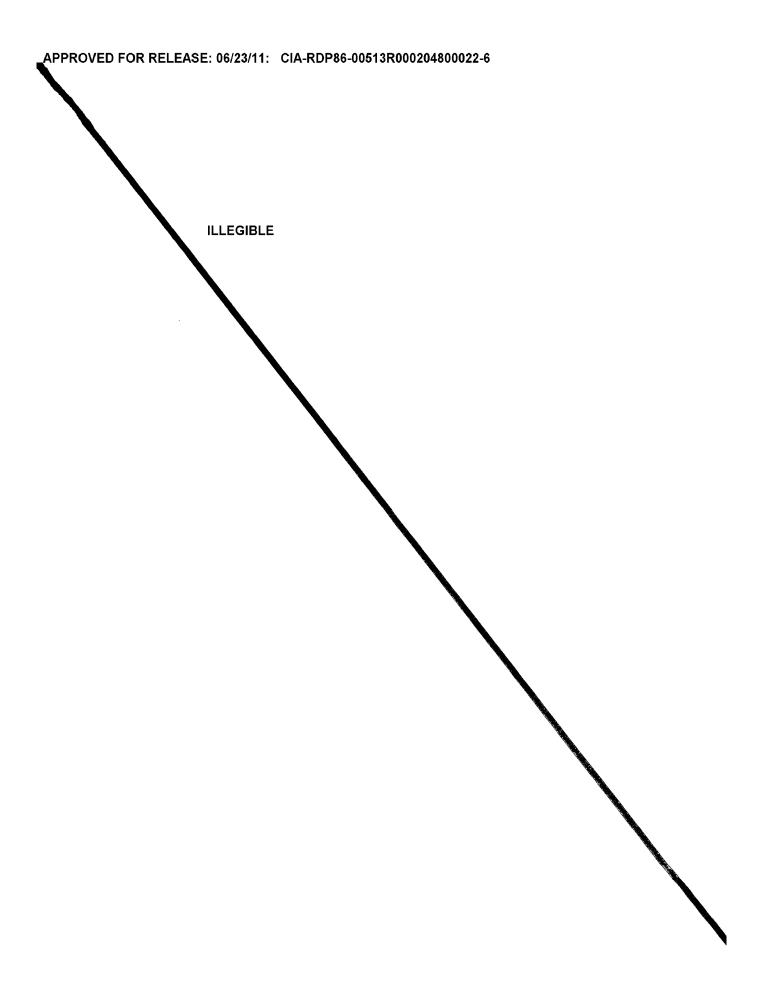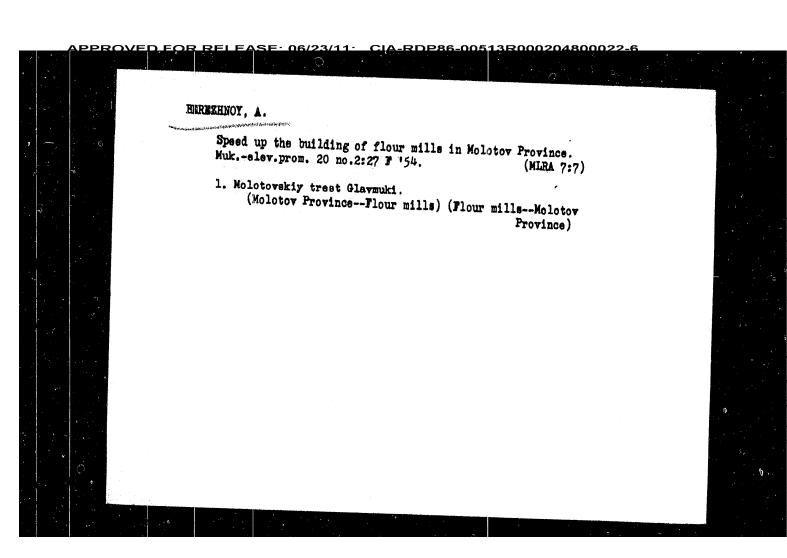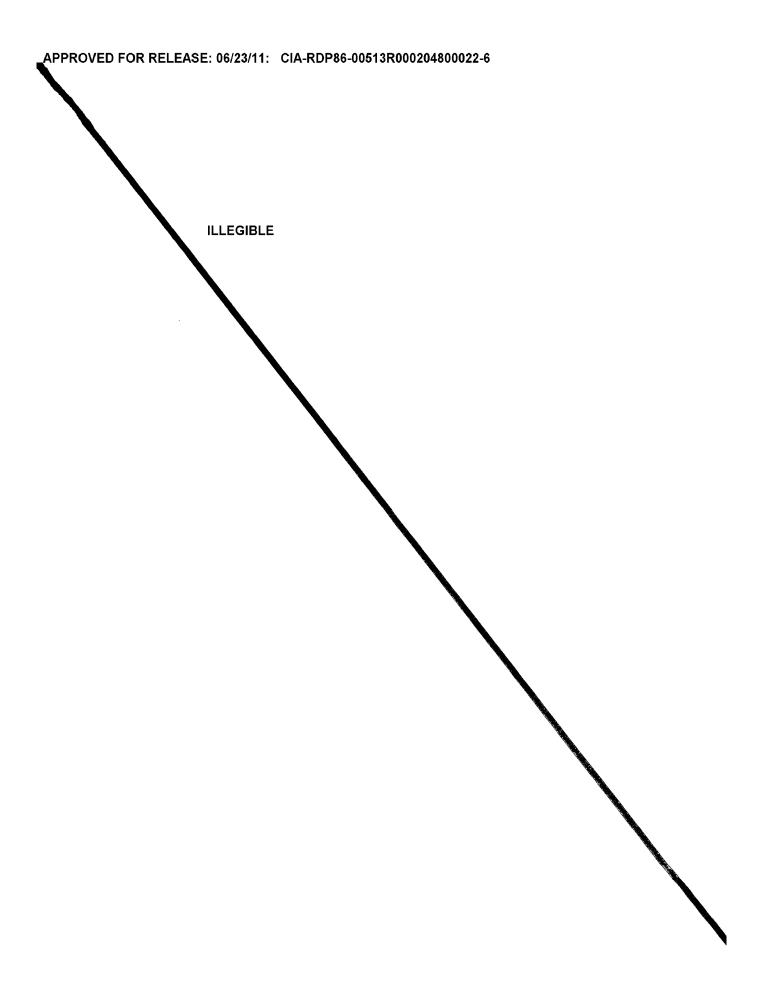   Province)

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GEORGIYEVSKAYA, L.M.;RUBANOVA, Ye.A.;BEREZHNOVA-SOLOV'YEVA, R.A.;BLAGOSKLONNAYA,
Ya.V.;ZHUKOV, M.V.

Acidbase equilibrium in the blood serum in pulmonary emphysema in
various stages of respiratory insufficiency. Ter. arkh., Moskva
24 no.4:23-31 July-Aug 1952.   (CIML 23:2)

1. Of the Faculty Therapeutic Clinic (Acting Head -- Prof. T. S.
Istamanova), First Leningrad Medical Institute imeni Academician I. P.
Pavlov.

99-9-3/9

Water Resources of the Turkmen SSR (40th Anniversary of the Great October
Revolution).

                filled in 1958. Minor irrigation projects were supplied from
subsurface water resources, operated by electric pumps. The
first remote control station for 10 wells will be established
in the Bezmein district by the end of 1957. Presently 750 ex-
cavators and 500 trucks are engaged in earth work, the expenses
for development amount to more than 200 million Rubles annual-
ly. For the development of the Turkmen water resources a
scientific research institute, a planning institute, two
technical schools and two practical training centers were
founded. The article contains 5 photographs, 1 map, and 1
diagram.

AVAILABLE: Library of Congress

Card 3/3

99-9-3/9

Water Resources of the Turkmen SSR (40th Anniversary of the Great October Revolution).

reservoirs, the Kazyklyben, Kaushut, and Yegriguzar power plants
the Karybent dam and several hundred km of canals serving
the different irrigation districts, Development of irrigation
was speeded up by the 6th 5-year plan, which called for an
increase of the irrigable acreage up to a total of 205,000
hectares. The largest project is the construction of the
Karakum canal, utilizing water of the Amu-Dar'ya river, the
resources of which are exploited at present only by 12-15 %.
Construction of this project will be carried out in 3 stages:
1. A 400 km section from the Amu-Dar'ya to the Murgab river to
supply water for 92,500 hectares, to be completed by 1957. 2.
From the Murgab river to Tedzhen, to irrigate 350,000 hectares
of arable land and 10,000,000 hectares of pasture and 3. From
Tedzhen to Archman. A new method was successfully applied
at the construction of the canal through the Kara-Kum desert.
Beginning from the last completed gate, a preliminary 10-15 km
long ditch, was excavated and filled with water, and then suc-
tion dredges widened the canal to the projected dimensions.
For the Mary and Ashkhabad irrigation districts the Tedzhen and
Saryyazyn reservoirs are under construction, the latter to be

Card 2/3

BEREZHNOV, PA.

99-9-3/9

AUTHOR: Berezhnov, P.A., Minister of Water Resources of the Turkmen
              SSR.

TITLE: " Water Resources of the Turkmen SSR (Vodnoye khozyaystvo
              Turkmenskoy SSR) (40th Anniversary of the Great October
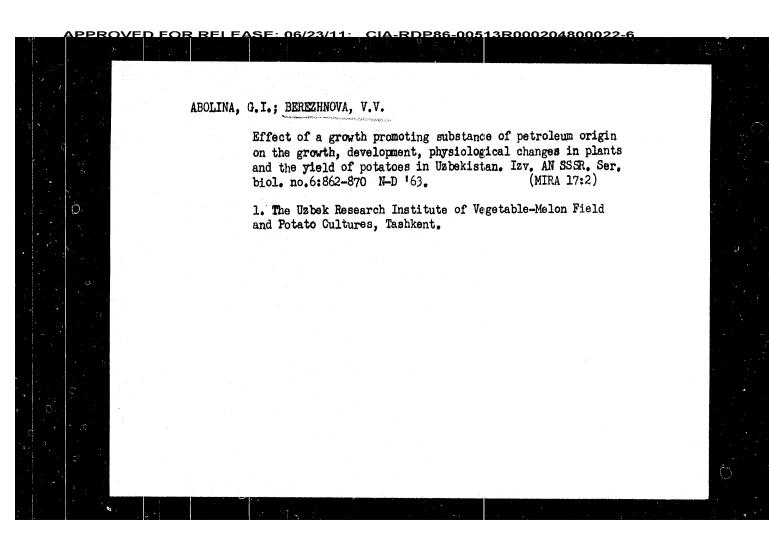   Revolution) (K 40-letiyu velikogo oktyabrya)

PERIODICAL: "Gidrotekhnika i Melioratsiya", 1957, Nr 9, pp 24-31 (USSR)

ABSTRACT: A total of 420,000 hectares of irrigable land is available
              in the Turkmen SSR. Because of the low annual precipitation
              (80 - 200 mm) farming is possible only with irrigation. In
              conjunction with water, climatic conditions favor the growning
              of fruit and cotton. Debris of former canals and dams can
              still be seen in the Chardzhou district. The old irrigation
              systems were primitive and inefficient, delivering water only
              during flood periods. Beginning in 1930, construction of
              hydraulic engineering projects was started on a large scale,
              and the efficiency factor rose from 0.25 to 0.50. Construction
              and maintenance of irrigation canals was mechanized, and manual
              work was reduced by 20 %. The following irrigation struc-
Card 1/3   tures were built: the Tashkeprin Tedzhen and Kolkhozbent

ABOLINA, G.I.; BEREZHNOVA, V.V.

Effect of a growth promoting substance of petroleum origin
on the growth, development, physiological changes in plants
and the yield of potatoes in Uzbekistan. Izv. AN SSSR. Ser.
biol. no.6:862-870 N-D '63.   (MIRA 17:2)

1. The Uzbek Research Institute of Vegetable-Melon Field
and Potato Cultures, Tashkent.

BEREZHNOVA, O.F.

Estimating the regional corrections for an averaged hodograph.
Geol. i geofiz. no.9:112-115 '64.   (MIRA 18:7)

1. Institut zemnoy kory Sibirskogo otdeleniya AN SSSR, Irkutsk.

BEREZHNOVA, N.M.

Analysis of errors in the diagnosis of extrauterine pregnancy.
Nauch.trudy Riaz.med.inst. 18 no.2:248-254 '62.

(MIRA 18:1)

1. Kafedra akusherstva i ginekologii (zav. - prof. G.N.Aksimov)
Ryazanskogo meditsinskogo instituta.

BAKSHEYEV, I.I.; BEREZHNOV, S.P., nauchnyy sotrudnik; MANAKOVA, T.P.,
    nauchnyy sotrudnik; ZAMARATSKAYA, K.I., nauchnyy sotrudnik

Ways for reducing the production cost of hydrolysis plants
of the Krasnoyarsk Economic Council. Trudy VSNIPILesdrev
no.9:27-36 '64.   (MIRA 18:11)

COUNTRY :
CATEGORY :

ABS. JOUR. : RZhBiol., No. 4, 1959, No. 15434

AUTHOR :
INST. :
TITLE :

ABSTRACT : summer wheat was somewhat less (on an average of
2.2 centner/hectare). -- P.V. Shramko

Card: 2/2

J

COUNTRY   : USSR
CATEGORY   : Soil Science. Fertilizers.

ABS. JOUR.   : RZhBiol., No. 4, 1959, No. 15434

AUTHOR   : Berezhnov, M.F.
INST.   : Sci.R s.Inst.of Agric. in the South East
TITLE   : Analysis of Soil Treatment by the method of T.S.
                 Mal'tsev in Irrigated Crop Rotation.

ORIG. PUB.   : Byul. nauchno-tekhn. inform. N.-i. In-ta s.-kh.
                 Yugo-Vostoka, 1958, No.3, 23-24

ABSTRACT   : Results of 3-year observations at Yershov Auxiliary Station are
                 reported. In an experiment with irrigated crop
                 rotation: alfalfa + meadow fescue grass, summer
                 wheat, winter wheat, corn and potatoes, summer
                 wheat, summer wheat with additional sowing of
                 grasses. Water permeability of the soil on sec-
                 tions , which were plowed without a moldboard on an
                 average of every 3 years, was 26.6% lower than
                 on sections with the ordinary treatment. On
                 plowed sections without a moldboard the harvest of

Card: 1/2

DOBROVA, S.M.; BEREZHNOV, I.P.

Contemporary state of radiosotope diagnosis of eye tumors.
Med.rad. 7 no.11:77-81 N'62.   (MIRA 16:9)

1. Iz kafedry glaznykh bolezney (zav. - dotsent S.M.Dobrova)
i kafedry rentgenologii i meditsinskoy radiologii (zav. -
dotsent M.Ye.Astapova) Kirgizskogo meditsinskogo instituta.
            (EYE--TUMORS)   (RADIOSOTOPES)

BEREZHNOV, I.P., kand.med.nauk (Frunze 7, ul. Rozy Lyukesmburg, d.82)

Board splint for transport immobilization in fractures of the
pelvic bones. Ortop.,travm. i protez. no.9:51-52 '61.

1. Iz Kirgizskogo meditsinskogo instituta (dir. - F.N. Nurgaiyeva`.
    (PELVIS--FRACTURE)   (SPLINTS (SURGERY))
                                                    (MIRA 14:10)

BEREZHNOV, I. P., Cand of Med Sci -- (diss) "Therapeutic-Transport Tire

for Broken Pelvis Bones," Frunze, 1959, 14 pp (Kirgiz State Med Inst)

(KL, 1-60, 125)

BEREZHNOV, I.P., kapitan med.slushby

Medical transport splint for fractures of the pelvic bones.
Voen.-med.zhur. no.9:91-93 S '58. (MIRA 12:12)
(SPLINTS
transport splint in pelvic bone fract.

DOBROVA, S.M.; BEREZHNOV, I.P.

Radioisotope diagnosis of eye tumors. Med. rad. 9 no.1:33-36 Ja '64.
(MIRA 17:9)

1. Kafedra glaznykh boloznoy (zav. - dotsent S.M.Dobrova) i kafedra
rentgenologii i meditsinskoy radiologii (zav. - dotsent M.Ye. Astapova)
Kirgizskogo meditsinskogo instituta.

SHAKHOV, A.I.; BEREZHNOV, I.N.; DUSHKIN, S.S.

Analyzing the operation of units for the magnetic processing
of water. Gaz. prom. 9 no.3:34-37 '64.   (MIRA 17:9)

BEREZHNOV, I.A., inzh. (Khar'kov)

Continuous cleaning and coating of pipes for urban gas pipeline
construction. Stroi.turboprov. 5 no.6:20-21 Je '60.

(MIRA 13:7)

(Gas, Natural—Pipelines)

MITROFANOV, M.G.; LEDYASHOVA, G.Ye.; BEREZHNOVA, M.I.; KYAZIMOV, A.A.;
    FEDOTOVA, A.F.; STEPANYAN, E.G.

Test results of an experimental plant rotary disk contactor.
Trudy GrozNII no. 15:213-219 '63.   (MIRA 17:5)

BEREZHNOV, M.F., kand.sel'skokhoz.nauk (Saratov)

Saturation irrigation of soils through long and deep furrows with
dams in previously slit-furrowed soil. Gidr. i mel. 15 no.4:9-11
Ap '63.   (MIRA 16:5)

                              (Irrigation)

BEREZHNOV, A.

Gas industry of the U.S.S.R., 1940-1961. Gaz.prom. 6 no.5:56 My
'61.
(MIRA 14:5)
(Gas industry)

USLONTSEV, B., naukoviy spivrobotnik; BEREZHNIY, M.

Mechanized production of three-step slag blocks. Sil'.bud. 9
no.6:9-10 Je '59.   (MIRA 12:9)

1. Sektor tekhnologii i organizatsii sil'skogo budivnitstva
Akademii budivnitstva i arkhitekturi URSR (for Uslontsev). 2.Golova
radi Izyums'koi mizhkolgospnoi budivel'noi organizatsii Khar'kive' -
koi oblasti (for Berezhniy).
                    (Izyum District--Concrete blocks)

BEREZHNIY, I. V.

MALINOVS'KIY, K.A.; BEREZHNIY, I.V.

Materials for a study on shrubs and subshrubs in eastern Carpathian
treeless lands. Nauk.zap.Pryrod.mus.L'viv.fil.AN URSR 5:81-110 '56.

(MLRA 10:5)

(Carpathian Mountains--Shrubs)